

We claim:

1. A method of detecting the chemical interaction between naturally occurring bio-polymers which are non-identical binding partners comprising:
  - preparing the surface of at least one cantilever with a binding partner;
  - introducing analyte molecules to said surface of said at least one cantilever;
  - detecting a physical or chemical change on said at least one cantilever.
2. A method as claimed in claim 1 wherein said analyte molecules are DNA.
3. The method of claim 1 wherein said detecting step comprises detecting induced stress on said at least one cantilever.
4. The method of claim 3 wherein said detecting step detects induced stress resulting from electrostatic forces between said binding partner and said analyte molecules.
5. The method of claim 3 wherein said detecting steps detects induced stress resulting from heat produced through the interaction of said analyte molecules with said binding partner.

introducing DNA to said at least one cantilever;  
detecting stress induced on said at least one cantilever.

12. The method of claim 11 wherein said detecting step detects induced stress resulting from electrostatic forces.
13. The method of claim 11 wherein said detecting step comprises measuring relative motion of said cantilever by reflecting a laser beam off of said at least one cantilever both before and after said introducing step.

6. The method of claim 1 wherein said detecting step comprises detecting heat on said at least one cantilever.

7. The method of claim 1 wherein said detecting step comprises detecting mass on said at least one cantilever.

8. The method of claim 1 wherein said chemical interaction is a non-covalent chemical interaction.

9. The method of claim 1 wherein said chemical interaction is a non-catalytic chemical interaction.

10. A method of detecting the occurrence of a chemical interaction between naturally occurring bio-polymers which are non-identical binding partners comprising:  
making at least one cantilever;  
preparing the surface of said at least one cantilever with a first material which can act as a binding partner to a second material;  
introducing said second material to said at least one cantilever;  
detecting a physical or chemical change on said at least one cantilever.

11. A method of detecting hybridization comprising:  
preparing the surface of at least one cantilever with a binding partner;

6. The method of claim 1 wherein said detecting step comprises detecting heat on said at least one cantilever.

7. The method of claim 1 wherein said detecting step comprises detecting mass on said at least one cantilever.

8. The method of claim 1 wherein said chemical interaction is a non-covalent chemical interaction.

9. The method of claim 1 wherein said chemical interaction is a non-catalytic chemical interaction.

10. A method of detecting the occurrence of a chemical interaction between naturally occurring bio-polymers which are non-identical binding partners comprising:  
making at least one cantilever;  
preparing the surface of said at least one cantilever with a first material which can act as a binding partner to a second material;  
introducing said second material to said at least one cantilever;  
detecting a physical or chemical change on said at least one cantilever.

11. A method of detecting hybridization comprising:  
preparing the surface of at least one cantilever with a binding partner;

introducing DNA to said at least one cantilever;  
detecting stress induced on said at least one cantilever.

12. The method of claim 11 wherein said detecting step detects induced stress resulting from electrostatic forces.

13. The method of claim 11 wherein said detecting step comprises measuring relative motion of said cantilever by reflecting a laser beam off of said at least one cantilever both before and after said introducing step.